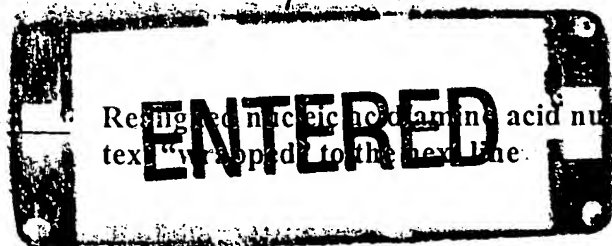


03w
01PE #6

**CRF Errors Edited by the STIC Systems
Branch**

Serial Number: 10/076,839A

CRF Edit Date: 7/20/04
Edited by: AZ



___ Corrected the SEQ ID NO. Sequence numbers edited were:

___ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID
NO's edited:

___ Deleted: ___ invalid beginning/end-of-file text ; ___ page numbers

___ Inserted mandatory headings/numeric identifiers, specifically:

___ Moved responses to same line as heading/numeric identifier, specifically:

___ Other: Sequence 2 - corrected misaligned amino acid numbers



OIPE

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 18:21:16

Input Set : A:\PTO.AMC.txt

Output Set : N:\CRF4\07202004\J076839A.raw

3 <110> APPLICANT: MAOKA, Tetsuo
 4 HATAYA, Tatsuji
 6 <120> TITLE OF INVENTION: Full-length Genomic RNA of Papaya Leaf-Distortion Mosaic
 Virus

8 <130> FILE REFERENCE: 382.1036
 10 <140> CURRENT APPLICATION NUMBER: 10/076,839A
 11 <141> CURRENT FILING DATE: 2002-02-15
 13 <150> PRIOR APPLICATION NUMBER: JP 2001-040523
 14 <151> PRIOR FILING DATE: 2001-02-16
 16 <160> NUMBER OF SEQ ID NOS: 4
 18 <170> SOFTWARE: PatentIn Ver. 2.0
 20 <210> SEQ ID NO: 1
 21 <211> LENGTH: 10155
 22 <212> TYPE: RNA
 23 <213> ORGANISM: Papaya Leaf-Distortion Mosaic Virus
 25 <220> FEATURE:
 26 <221> NAME/KEY: CDS
 27 <222> LOCATION: (136)..(9942)
 29 <220> FEATURE:
 30 <221> NAME/KEY: modified_base
 31 <222> LOCATION: 1
 32 <223> OTHER INFORMATION: n = a or deletion
 34 <220> FEATURE:
 35 <221> NAME/KEY: modified_base
 36 <222> LOCATION: 10155
 37 <223> OTHER INFORMATION: n = a or deletion
 39 <400> SEQUENCE: 1

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 44 acacacacag acaac aug ucg auu guu auu ggu gau uuu ucc auc cca cuc 171
 45 Met Ser Ile Val Ile Gly Asp Phe Ser Ile Pro Leu
 46 1 5 10
 48 auc ugc aga acu gag cag auu gaa ugu guu cgu cuu guu ccu gga aca 219
 49 Ile Cys Arg Thr Glu Gln Ile Glu Cys Val Arg Leu Val Pro Gly Thr
 50 15 20 25
 52 aga guu gaa gaa gug aag acc auu aaa aag guc uua aaa aca cac uac 267
 53 Arg Val Glu Glu Val Lys Thr Ile Lys Lys Val Leu Lys Thr His Tyr
 54 30 35 40
 56 caa gaa aua acu cuu ggu ugu acu gau aga ugc gcg ggc cug agc gca 315
 57 Gln Glu Ile Thr Leu Gly Cys Thr Asp Arg Cys Ala Gly Leu Ser Ala
 58 45 50 55 60
 60 uac aca aaa acc ucc cuu aag aga gca auu aag gaa aag gau uua acu 363
 61 Tyr Thr Lys Thr Ser Leu Lys Arg Ala Ile Lys Glu Lys Asp Leu Thr
 62 65 70 75

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 18:21:16

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\07202004\J076839A.raw

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64 gca ucu ggc agu ugu uuc cac ugu ggc cuu aga gca caa auc gga gag 411
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66      80      85      90
68 ggu aga aaa agg gua gaa uua gca ccc auu uca guc aug gag gau guu 459
69 Gly Arg Lys Arg Val Glu Leu Ala Pro Ile Ser Val Met Glu Asp Val
70      95      100      105
72 gaa acu gug gaa caa gua cuu guu cca ugu aug gua gaa gag aag uau 507
73 Glu Thr Val Glu Gln Val Leu Val Pro Cys Met Val Glu Glu Lys Tyr
74      110      115      120
76 uau aag gaa guu ucg aa uuc cag aag gcu acg cuc auc gac aaa cca 555
77 Tyr Lys Glu Val Ser Asn Phe Gln Lys Ala Thr Leu Ile Asp Lys Pro
78 125      130      135      140
80 aag cua acu aua gcc cca guu uua aug gca caa ccu gcc caa gug cca 603
81 Lys Leu Thr Ile Ala Pro Val Leu Met Ala Gln Pro Ala Gln Val Pro
82      145      150      155
84 agg ccc gcu guu uuu aa uaa gaa aua cga aaa guu cau gag gag aug aag 651
85 Arg Pro Ala Val Phe Asn Glu Ile Arg Lys Val His Glu Glu Met Lys
86      160      165      170
88 ucc caa acc ucu gaa aac aag guc uua gaa gag gaa acu caa ugc gcc 699
89 Ser Gln Thr Ser Glu Asn Lys Val Leu Glu Glu Glu Thr Gln Cys Ala
90      175      180      185
92 agu gau gca gcg cuu cac cac uua gac gac guu cau gcg ugu aga gcu 747
93 Ser Asp Ala Ala Leu His His Leu Asp Asp Val His Ala Cys Arg Ala
94      190      195      200
96 cga gca cag gua ggc auu gaa cgc aua cua gcc aga cau gca agg cau 795
97 Arg Ala Gln Val Gly Ile Glu Arg Ile Leu Ala Arg His Ala Arg His
98 205      210      215      220
100 aga auc gag gcu aga cag caa guu gaa gag gag caa ugc gaa gca uua 843
101 Arg Ile Glu Ala Arg Gln Gln Val Glu Glu Glu Gln Ser Glu Ala Leu
102      225      230      235
104 gca gcg uuc gaa ucc uuc uuc aa uaa caa acu cac aga gaa gac aga uau 891
105 Ala Ala Phe Glu Ser Phe Phe Asn Gln Thr His Arg Glu Asp Arg Tyr
106      240      245      250
108 gaa ggg aaa guc uua acc auu cga aa uggg auc aca ggc ugg uuu gaa 939
109 Glu Gly Lys Val Leu Thr Ile Arg Asn Gly Ile Thr Gly Trp Phe Glu
110      255      260      265
112 cca aa uagg aa uau aa uag aac gca gcu agg cgg agg aag aga gcu 987
113 Pro Asn Arg Asn Asp Ile Lys Asn Ala Ala Arg Arg Arg Lys Arg Ala
114      270      275      280
116 aac aag aaa auc ccg uuu guu gca cgu gaa aa uag gac guc gcg cgg aua 1035
117 Asn Lys Lys Ile Pro Phe Val Ala Arg Glu Asn Asp Val Ala Arg Ile
118 285      290      295      300
120 gaa acu cau gaa ccu aac guc aaa gag gag aca aaa gau gug gag gaa 1083
121 Glu Thr His Glu Pro Asn Val Lys Glu Glu Thr Lys Asp Val Glu Glu
122      305      310      315
124 gca acu gac aca uac aca uuu aag aag cag cgc aa uau gau aaa aag aga 1131
125 Ala Thr Asp Thr Tyr Thr Phe Lys Lys Gln Arg Asn Asp Lys Lys Arg
126      320      325      330
128 gug cug aaa gaa aa uug ucu cuu agu aug gcg cgc auu aa uag gaa cuu 1179

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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/076,839A

DATE: 07/20/2004

TIME: 18:21:16

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\07202004\J076839A.raw

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129 Val Leu Lys Glu Asn Val Ser Leu Ser Met Ala Arg Ile Asn Glu Leu
130          335          340          345
132 guc cga ugu guu aca aaa uua ugc cga aaa gau uca aag gag cuu gag 1227
133 Val Arg Cys Val Thr Lys Leu Cys Arg Lys Asp Ser Lys Glu Leu Glu
134          350          355          360
136 uuu auc ggc aag aga gga agu cuu cga guu caa ugu acu aaa aaU ugu 1275
137 Phe Ile Gly Lys Arg Gly Ser Leu Arg Val Gln Cys Thr Lys Asn Cys
138 365          370          375          380
140 ggu uca cga gug aua cua aga cac uug cgu gga gaa cuu aga aga aaa 1323
141 Gly Ser Arg Val Ile Leu Arg His Leu Arg Gly Glu Leu Arg Arg Lys
142          385          390          395
144 gau ugu uau ugg gau cgu auc auu gag aaU uuc uuu gaa auu gca gcu 1371
145 Asp Cys Tyr Trp Asp Arg Ile Ile Glu Asn Phe Phe Glu Ile Ala Ala
146          400          405          410
148 gca aag cuu cag aaU aag aaU cuc aaU aac aaU gaa ucu gug agg aga 1419
149 Ala Lys Leu Gln Asn Lys Asn Leu Asn Asn Asn Glu Ser Val Arg Arg
150          415          420          425
152 ggg cac agu gga cau auc auu caa uau gau aag uuu aga ggu uug agu 1467
153 Gly His Ser Gly His Ile Ile Gln Tyr Asp Lys Phe Arg Gly Leu Ser
154          430          435          440
156 gga cgg cau uuc gga agu uac auc auu guu agg ggu agc aug gau ggc 1515
157 Gly Arg His Phe Gly Ser Tyr Ile Ile Val Arg Gly Ser Met Asp Gly
158 445          450          455          460
160 aga auu auu gac gcu cgu uca aag auc aca cac agc guu aug auc aac 1563
161 Arg Ile Ile Asp Ala Arg Ser Lys Ile Thr His Ser Val Met Ile Asn
162          465          470          475
164 aug acc cac uac agu gau gca ggu uug agu uuu ugg aaa ggu uuu gau 1611
165 Met Thr His Tyr Ser Asp Ala Gly Leu Ser Phe Trp Lys Gly Phe Asp
166          480          485          490
168 cgu caa uuu auu gac auu cga gau aga ccu aag aac gcu cau gag ugc 1659
169 Arg Gln Phe Ile Asp Ile Arg Asp Arg Pro Lys Asn Ala His Glu Cys
170          495          500          505
172 aag gcc acu aua aac guu gag gag ugu ggc gaa aug gca gcc auu gua 1707
173 Lys Ala Thr Ile Asn Val Glu Glu Cys Gly Glu Met Ala Ala Ile Val
174          510          515          520
176 aac caa cuc cua uuu cca aug ugg aaa aua aca ugc acu caa ugu gga 1755
177 Asn Gln Leu Leu Phe Pro Met Trp Lys Ile Thr Cys Thr Gln Cys Gly
178 525          530          535          540
180 gaa cug cuu gaa aug uug uca caa gaa gag gaa cuu gaa ucu uuc agg 1803
181 Glu Leu Leu Glu Met Leu Ser Gln Glu Glu Leu Glu Ser Phe Arg
182          545          550          555
184 cgu aaa agg agc caa uug gca agu aaa uua ucc agu cuu cau auc aaa 1851
185 Arg Lys Arg Ser Gln Leu Ala Ser Lys Leu Ser Ser Leu His Ile Lys
186          560          565          570
188 uuu ccu uac gug gau cau uuu cuu aaU cga uau gag aaU agu cug aaU 1899
189 Phe Pro Tyr Val Asp His Phe Leu Asn Arg Tyr Glu Asn Ser Leu Asn
190          575          580          585
192 cgg aug aac aca aac uuc gau gcg cac aaa caa auu gca caa auu auu 1947
193 Arg Met Asn Thr Asn Phe Asp Ala His Lys Gln Ile Ala Gln Ile Ile

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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/076,839A

DATE: 07/20/2004

TIME: 18:21:16

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\07202004\J076839A.raw

194	590	595	600	
196	ggc agu cgc aaa gag auu ccu uuu uca aaU uua gag cau cug aaU gaa	1995		
197	Gly Ser Arg Lys Glu Ile Pro Phe Ser Asn Leu Glu His Leu Asn GlU			
198	605	610	615	620
200	uug cua auu aag ucg gau aaa cuu guu agc gag gau uuc uau gaa aug	2043		
201	Leu Leu Ile Lys Ser Asp Lys Leu Val Ser GlU Asp Phe Tyr GlU Met			
202		625	630	635
204	ucu caa ugc cuu uua gag cua aca cgc ugg cau aaa aac agg agc gau	2091		
205	Ser Gln Cys Leu GlU Leu Thr Arg Trp His Lys Asn Arg Ser Asp			
206		640	645	650
208	uca uuc aag aag gga gag auu cac cau uuc cga aaU aag aug uca ggu	2139		
209	Ser Phe Lys Lys Gly GlU Ile His His Phe Arg Asn Lys Met Ser Gly			
210		655	660	665
212	aaa gca caa uuu aaU uuu gca uug aug ugu gac aac caa cuu gac aaa	2187		
213	Lys Ala Gln Phe Asn Phe Ala Leu Met Cys Asp Asn Gln Leu Asp Lys			
214		670	675	680
216	aaU ggu aac uuc gug ugg ggu gaa aga ggu uau cau gcg aag agg uuU	2235		
217	Asn Gly Asn Phe Val Trp Gly GlU Arg Gly Tyr His Ala Lys Arg Phe			
218	685	690	695	700
220	uuc uua aac uuc uuU gag aaa guu gau uca acU gac ggu uau aag aaa	2283		
221	Phe Leu Asn Phe Phe GlU Lys Val Asp Ser Thr Asp Gly Tyr Lys Lys			
222		705	710	715
224	cac aua aug cga guc aac cca aaU ggc aca aga caa aca gcU aua gga	2331		
225	His Ile Met Arg Val Asn Pro Asn Gly Thr Arg Gln Thr Ala Ile Gly			
226		720	725	730
228	aaa cug auu uua ucg acg gau cca ucu acg cua cga caa caa aug aaa	2379		
229	Lys Leu Ile Leu Ser Thr Asp Pro Ser Thr Leu Arg Gln Gln Met Lys			
230		735	740	745
232	ggu agc cca auc aca aga guu cca guu ggu aaa uau ugu aca agc aaa	2427		
233	Gly Ser Pro Ile Thr Arg Val Pro Val Gly Lys Tyr Cys Thr Ser Lys			
234		750	755	760
236	aga gau ggu ugu uac guc uau cca gca ugc ugu guu aca aug gaa gau	2475		
237	Arg Asp Gly Cys Tyr Val Tyr Pro Ala Cys Cys Val Thr Met GlU Asp			
238	765	770	775	780
240	ggu acg cca uug uuU ucu gau auc aag aug cca acU aag aaU cau cua	2523		
241	Gly Thr Pro Leu Phe Ser Asp Ile Lys Met Pro Thr Lys Asn His Leu			
242		785	790	795
244	guc auu gga aaU uca gga gau cca aag uau gug gau gua cca agc agc	2571		
245	Val Ile Gly Asn Ser Gly Asp Pro Lys Tyr Val Asp Val Pro Ser Ser			
246		800	805	810
248	uca agu gac aug auu gug gcU aag gaa ggu uau ugu uau cuc aac auu	2619		
249	Ser Ser Asp Met Ile Val Ala Lys GlU Gly Tyr Cys Tyr Leu Asn Ile			
250		815	820	825
252	uuc uug gca aug uug cug aaU gug aaU gag agu gaa uca aaa uca uuc	2667		
253	Phe Leu Ala Met Leu Leu Asn Val Asn GlU Ser GlU Ser Lys Ser Phe			
254		830	835	840
256	aca aag aag guu aga gau aua auu gua ccg cgU cuc ggu caa ugg cca	2715		
257	Thr Lys Lys Val Arg Asp Ile Ile Val Pro Arg Leu Gly Gln Trp Pro			
258	845	850	855	860

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 18:21:16

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\07202004\J076839A.raw

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260 agc uua auc gau guu gca acu gaa ugu uac uuc cua uca gcc uuc cac 2763
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262      865      870      875
264 ccu gaa acg aaa aaU gcu gag uug ccc cga auu cua gug gau cau aca 2811
265 Pro Glu Thr Lys Asn Ala Glu Leu Pro Arg Ile Leu Val Asp His Thr
266      880      885      890
268 uca aaa ugu aug cau gug auc gau uca uau ggc ugc cua gac acg caa 2859
269 Ser Lys Cys Met His Val Ile Asp Ser Tyr Gly Ser Leu Asp Thr Gln
270      895      900      905
272 uuu cau guu cug aag gca aaU acu gua agu cag cua auu aaa uuc gcc 2907
273 Phe His Val Leu Lys Ala Asn Thr Val Ser Gln Leu Ile Lys Phe Ala
274      910      915      920
276 gau aaU gac uug gau ugc gag cug aaa cau uau uua gua ggu gga gac 2955
277 Asp Asn Asp Leu Asp Ser Glu Leu Lys His Tyr Leu Val Gly Gly Asp
278 925      930      935      940
280 cuc cau agc aag caa gcu ccu cag ugu ucc aua aaa uua cuc ugu aaa 3003
281 Leu His Ser Lys Gln Ala Pro Gln Cys Ser Ile Lys Leu Leu Cys Lys
282      945      950      955
284 ugu aua uau agg ccu aaa uug aug agg caa ugc auu gag gaa gag ccu 3051
285 Cys Ile Tyr Arg Pro Lys Leu Met Arg Gln Cys Ile Glu Glu Glu Pro
286      960      965      970
288 uuu uug uug auu uua gcg ugu auc uca cca ggu guu uua uua gcu uua 3099
289 Phe Leu Leu Ile Leu Ala Cys Ile Ser Pro Gly Val Leu Leu Ala Leu
290      975      980      985
292 uau aaU agu cag cau uua gaa uua gcu uua aag uac ugg aug agc aag 3147
293 Tyr Asn Ser Gln His Leu Glu Leu Ala Leu Lys Tyr Trp Met Ser Lys
294      990      995      1000
296 caa cag ucu guc gcu gcu uua uuu gca aug auc cau gga cua gcu gca 3195
297 Gln Gln Ser Val Ala Ala Leu Phe Ala Met Ile His Gly Leu Ala Ala
298 1005      1010      1015      1020
300 aaa gua aca guu gcu caa aca uug aaU gag cag aga cua aua cuu gaa 3243
301 Lys Val Thr Val Ala Gln Thr Leu Asn Glu Gln Arg Leu Ile Leu Glu
302      1025      1030      1035
304 cgc ggg gcg cgc aaU uug auu ugc guc aug gaa acc aua cac aug aca 3291
305 Arg Gly Ala Arg Asn Leu Ile Ser Val Met Glu Thr Ile His Met Thr
306      1040      1045      1050
308 agc cau uca uac caa ccc gcg cuu cuu caa cua cag guc aug gca aaU 3339
309 Ser His Ser Tyr Gln Pro Ala Leu Leu Gln Leu Gln Val Met Ala Asn
310      1055      1060      1065
312 cgu aga gac aug aaU ucc acu cuu gau cuc gcc gga uuc agc aua uua 3387
313 Arg Arg Asp Met Asn Ser Thr Leu Asp Leu Ala Gly Phe Ser Ile Leu
314      1070      1075      1080
316 caa ucu gaa gau agu aug uau ugg aug gaa aaa agu uau cuc aug gaa 3435
317 Gln Ser Glu Asp Ser Met Tyr Trp Met Glu Lys Ser Tyr Leu Met Glu
318 1085      1090      1095      1100
320 uua gag gau ugc ugg aac gac uua aag ugg uug gaa aaa uua caa gaa 3483
321 Leu Glu Asp Ser Trp Asn Asp Leu Lys Trp Leu Glu Lys Leu Gln Glu
322      1105      1110      1115
324 aug ugg cga uua uca aag uac uca aua ucu ggg aua agu caa cuu uca 3531

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RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/076,839A

DATE: 07/20/2004
TIME: 18:21:17

Input Set : A:\PTO.AMC.txt
Output Set: N:\CRF4\07202004\J076839A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:1; N Pos. 1,10155

VERIFICATION SUMMARY

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 18:21:17

Input Set : A:\PTO.AMC.txt

Output Set: N:\CRF4\07202004\J076839A.raw

L:40 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0

M:341 Repeated in SeqNo=1

L:1512 M:283 W: Missing Blank Line separator, <220> field identifier



OIPE

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:53

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

3 <110> APPLICANT: MAOKA, Tetsuo

4 HATAYA, Tatsuji

6 <120> TITLE OF INVENTION: Full-length Genomic RNA of Papaya Leaf-Distortion Mosaic

Virus

8 <130> FILE REFERENCE: 382.1036

10 <140> CURRENT APPLICATION NUMBER: 10/076,839A

11 <141> CURRENT FILING DATE: 2002-02-15

13 <150> PRIOR APPLICATION NUMBER: JP 2001-040523

14 <151> PRIOR FILING DATE: 2001-02-16

16 <160> NUMBER OF SEQ ID NOS: 4

18 <170> SOFTWARE: PatentIn Ver. 2.0

ERRORED SEQUENCES

873 <210> SEQ ID NO: 2

874 <211> LENGTH: 3269

875 <212> TYPE: PRT

876 <213> ORGANISM: Papaya Leaf-Distortion Mosaic Virus

878 <400> SEQUENCE: 2

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880 1 5 10 15

882 Glu Gln Ile Glu Cys Val Arg Leu Val Pro Gly Thr Arg Val Glu Glu

883 20 25 30

885 Val Lys Thr Ile Lys Lys Val Leu Lys Thr His Tyr Gln Glu Ile Thr

886 35 40 45

888 Leu Gly Cys Thr Asp Arg Cys Ala Gly Leu Ser Ala Tyr Thr Lys Thr

889 50 55 60

891 Ser Leu Lys Arg Ala Ile Lys Glu Lys Asp Leu Thr Ala Ser Gly Ser

892 65 70 75 80

894 Cys Phe His Cys Gly Leu Arg Ala Gln Ile Gly Glu Gly Arg Lys Arg

895 85 90 95

897 Val Glu Leu Ala Pro Ile Ser Val Met Glu Asp Val Glu Thr Val Glu

898 100 105 110

900 Gln Val Leu Val Pro Cys Met Val Glu Glu Lys Tyr Tyr Lys Glu Val

901 115 120 125

903 Ser Asn Phe Gln Lys Ala Thr Leu Ile Asp Lys Pro Lys Leu Thr Ile

904 130 135 140

906 Ala Pro Val Leu Met Ala Gln Pro Ala Gln Val Pro Arg Pro Ala Val

907 145 150 155 160

909 Phe Asn Glu Ile Arg Lys Val His Glu Glu Met Lys Ser Gln Thr Ser

910 165 170 175

912 Glu Asn Lys Val Leu Glu Glu Glu Thr Gln Cys Ala Ser Asp Ala Ala

913 180 185 190

Does Not Comply
Corrected Diskette Needed

page 4, 6

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:53

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

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918 Gly Ile Glu Arg Ile Leu Ala Arg His Ala Arg His Arg Ile Glu Ala
919      210      215      220
921 Arg Gln Gln Val Glu Glu Glu Gln Ser Glu Ala Leu Ala Ala Phe Glu
922 225      230      235      240
924 Ser Phe Phe Asn Gln Thr His Arg Glu Asp Arg Tyr Glu Gly Lys Val
925      245      250      255
927 Leu Thr Ile Arg Asn Gly Ile Thr Gly Trp Phe Glu Pro Asn Arg Asn
928      260      265      270
930 Asp Ile Lys Asn Ala Ala Arg Arg Arg Lys Arg Ala Asn Lys Lys Ile
931      275      280      285
933 Pro Phe Val Ala Arg Glu Asn Asp Val Ala Arg Ile Glu Thr His Glu
934      290      295      300
936 Pro Asn Val Lys Glu Glu Thr Lys Asp Val Glu Glu Ala Thr Asp Thr
937 305      310      315      320
939 Tyr Thr Phe Lys Lys Gln Arg Asn Asp Lys Lys Arg Val Leu Lys Glu
940      325      330      335
942 Asn Val Ser Leu Ser Met Ala Arg Ile Asn Glu Leu Val Arg Cys Val
943      340      345      350
945 Thr Lys Leu Cys Arg Lys Asp Ser Lys Glu Leu Glu Phe Ile Gly Lys
946      355      360      365
948 Arg Gly Ser Leu Arg Val Gln Cys Thr Lys Asn Cys Gly Ser Arg Val
949      370      375      380
951 Ile Leu Arg His Leu Arg Gly Glu Leu Arg Arg Lys Asp Cys Tyr Trp
952 385      390      395      400
954 Asp Arg Ile Ile Glu Asn Phe Phe Glu Ile Ala Ala Ala Lys Leu Gln
955      405      410      415
957 Asn Lys Asn Leu Asn Asn Asn Glu Ser Val Arg Arg Gly His Ser Gly
958      420      425      430
960 His Ile Ile Gln Tyr Asp Lys Phe Arg Gly Leu Ser Gly Arg His Phe
961      435      440      445
963 Gly Ser Tyr Ile Ile Val Arg Gly Ser Met Asp Gly Arg Ile Ile Asp
964      450      455      460
966 Ala Arg Ser Lys Ile Thr His Ser Val Met Ile Asn Met Thr His Tyr
967 465      470      475      480
969 Ser Asp Ala Gly Leu Ser Phe Trp Lys Gly Phe Asp Arg Gln Phe Ile
970      485      490      495
972 Asp Ile Arg Asp Arg Pro Lys Asn Ala His Glu Cys Lys Ala Thr Ile
973      500      505      510
975 Asn Val Glu Glu Cys Gly Glu Met Ala Ala Ile Val Asn Gln Leu Leu
976      515      520      525
978 Phe Pro Met Trp Lys Ile Thr Cys Thr Gln Cys Gly Glu Leu Leu Glu
979      530      535      540
981 Met Leu Ser Gln Glu Glu Glu Leu Glu Ser Phe Arg Arg Lys Arg Ser
982 545      550      555      560
984 Gln Leu Ala Ser Lys Leu Ser Ser Leu His Ile Lys Phe Pro Tyr Val
985      565      570      575
987 Asp His Phe Leu Asn Arg Tyr Glu Asn Ser Leu Asn Arg Met Asn Thr

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RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:53

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

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988          580          585          590
990 Asn Phe Asp Ala His Lys Gln Ile Ala Gln Ile Ile Gly Ser Arg Lys
991          595          600          605
993 Glu Ile Pro Phe Ser Asn Leu Glu His Leu Asn Glu Leu Leu Ile Lys
994          610          615          620
996 Ser Asp Lys Leu Val Ser Glu Asp Phe Tyr Glu Met Ser Gln Cys Leu
997 625          630          635          640
999 Leu Glu Leu Thr Arg Trp His Lys Asn Arg Ser Asp Ser Phe Lys Lys
1000          645          650          655
1002 Gly Glu Ile His His Phe Arg Asn Lys Met Ser Gly Lys Ala Gln Phe
1003          660          665          670
1005 Asn Phe Ala Leu Met Cys Asp Asn Gln Leu Asp Lys Asn Gly Asn Phe
1006          675          680          685
1008 Val Trp Gly Glu Arg Gly Tyr His Ala Lys Arg Phe Phe Leu Asn Phe
1009          690          695          700
1011 Phe Glu Lys Val Asp Ser Thr Asp Gly Tyr Lys Lys His Ile Met Arg
1012 705          710          715          720
1014 Val Asn Pro Asn Gly Thr Arg Gln Thr Ala Ile Gly Lys Leu Ile Leu
1015          725          730          735
1017 Ser Thr Asp Pro Ser Thr Leu Arg Gln Gln Met Lys Gly Ser Pro Ile
1018          740          745          750
1020 Thr Arg Val Pro Val Gly Lys Tyr Cys Thr Ser Lys Arg Asp Gly Cys
1021          755          760          765
1023 Tyr Val Tyr Pro Ala Cys Cys Val Thr Met Glu Asp Gly Thr Pro Leu
1024          770          775          780
1026 Phe Ser Asp Ile Lys Met Pro Thr Lys Asn His Leu Val Ile Gly Asn
1027 785          790          795          800
1029 Ser Gly Asp Pro Lys Tyr Val Asp Val Pro Ser Ser Ser Ser Asp Met
1030          805          810          815
1032 Ile Val Ala Lys Glu Gly Tyr Cys Tyr Leu Asn Ile Phe Leu Ala Met
1033          820          825          830
1035 Leu Leu Asn Val Asn Glu Ser Glu Ser Lys Ser Phe Thr Lys Lys Val
1036          835          840          845
1039 Arg Asp Ile Ile Val Pro Arg Leu Gly Gln Trp Pro Ser Leu Ile Asp
1040          850          855          860
1042 Val Ala Thr Glu Cys Tyr Phe Leu Ser Ala Phe His Pro Glu Thr Lys
1043 865          870          875          880
1045 Asn Ala Glu Leu Pro Arg Ile Leu Val Asp His Thr Ser Lys Cys Met
1046          885          890          895
1048 His Val Ile Asp Ser Tyr Gly Ser Leu Asp Thr Gln Phe His Val Leu
1049          900          905          910
1051 Lys Ala Asn Thr Val Ser Gln Leu Ile Lys Phe Ala Asp Asn Asp Leu
1052          915          920          925
1054 Asp Ser Glu Leu Lys His Tyr Leu Val Gly Gly Asp Leu His Ser Lys
1055          930          935          940
1057 Gln Ala Pro Gln Cys Ser Ile Lys Leu Leu Cys Lys Cys Ile Tyr Arg
1058 945          950          955          960
1060 Pro Lys Leu Met Arg Gln Cys Ile Glu Glu Pro Phe Leu Leu Ile
1061          965          970          975

```

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:53

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

```

1063 Leu Ala Cys Ile Ser Pro Gly Val Leu Leu Ala Leu Tyr Asn Ser Gln
1064          980          985          990
1067 His Leu Glu Leu Ala Leu Lys Tyr Trp Met Ser Lys Gln Gln Ser Val
1068          995          1000          1005
1070 Ala Ala Leu Phe Ala Met Ile His Gly Leu Ala Ala Lys Val Thr Val
1071          1010          1015          1020
1073 Ala Gln Thr Leu Asn Glu Gln Arg Leu Ile Leu Glu Arg Gly Ala Arg
1074 1025          1030          1035          1040
1076 Asn Leu Ile Ser Val Met Glu Thr Ile His Met Thr Ser His Ser Tyr
1077          1045          1050          1055
1079 Gln Pro Ala Leu Leu Gln Leu Gln Val Met Ala Asn Arg Arg Asp Met
1080          1060          1065          1070
1082 Asn Ser Thr Leu Asp Leu Ala Gly Phe Ser Ile Leu Gln Ser Glu Asp
1083          1075          1080          1085
1085 Ser Met Tyr Trp Met Glu Lys Ser Tyr Leu Met Glu Leu Glu Asp Ser
E--> 1086          1090          1095          1100
1088 Trp Asn Asp Leu Lys Trp Leu Glu Lys Leu Gln Glu Met Trp Arg Leu
E--> 1089 1105          1110          1115          1120
1091 Ser Lys Tyr Ser Ile Ser Gly Ile Ser Gln Leu Ser Met Lys Gly Ala
E--> 1092          1125          1130          1135
1095 Thr Asp Leu Gly Gly Arg Tyr Ser Val Ser Ala Lys Gln Phe Ile Thr
E--> 1096          1140          1145          1150
1098 Ser Val Met Lys Pro Val Lys Lys Ser Cys Val Lys Ala Arg Asp Thr
E--> 1099          1155          1160          1165
1101 Cys Lys Glu Val Ile Ile Asn Thr Thr Ser Trp Thr Phe Arg Ala Thr
E--> 1102          1170          1175          1180
1104 Phe Ser Leu Cys Arg Trp Cys Leu Pro Asp Cys Leu Lys Phe Ile Asn
E--> 1105 1185          1190          1195          1200
1107 Met Leu Ile Val Ile Ser Leu Ile Leu Ser Ile Trp His Ser Ala Asn
E--> 1108          1205          1210          1215
1110 Ser Ile Ser Phe Asp Tyr Ala Gln Met Lys Arg Glu Lys Gln Val Asn
E--> 1111          1220          1225          1230
1113 Ile Glu Lys Val Leu Met Asn Asn Leu Val Ala Leu His Lys Glu Gln
E--> 1114          1235          1240          1245
1116 Ile Lys Ile Asn Pro Asp Leu Thr Lys Glu Glu Phe Lys Glu Tyr Ile
E--> 1117          1250          1255          1260
1119 Ala Arg Ser Arg Pro Glu Leu Ile Ala Leu Val Asn Lys Glu Leu Gln
E--> 1120 1265          1270          1275          1280
1123 Glu Glu Val Asp His Gln Ala Lys Arg Lys Gly Glu Gln Asn Leu Glu
E--> 1124          1285          1290          1295
1126 Lys Ile Ile Ala Phe Val Ala Leu Val Met Met Ile Phe Asp Ser Glu
E--> 1127          1300          1305          1310
1129 Lys Ser Asp Cys Val Tyr Lys Thr Leu Asn Lys Leu Arg Asn Leu Val
E--> 1130          1315          1320          1325
1132 Ala Thr Cys Asp Glu Pro Val Ala His Gln Ser Leu Asp Asp Ile Gln
E--> 1133          1330          1335          1340
1135 Asp Ile Leu Thr Asp Lys Glu Thr Thr Ile Asp Phe Asp Leu Asp Cys
E--> 1136 1345          1350          1355          1360
1138 Glu Gly Ser Lys Val Thr Glu Phe Lys Glu Met Asn Phe Ala Ala Trp

```

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:53

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

```

E--> 1139          1365          1370          1375
      1141 Trp Glu Lys Gln Leu Gln Cys Asp Arg Val Val Pro His Tyr Arg Thr
E--> 1142          1380          1385          1390
      1144 Thr Gly Lys Phe Ile Glu Phe Thr Arg Glu Ser Cys Val Ser Val Ser
E--> 1145          1395          1400          1405
      1147 Asn Thr Ile Ser His Ala Pro Glu Lys Glu Trp Ile Val Arg Gly Gly
E--> 1148          1410          1415          1420
      1151 Val Gly Ser Gly Lys Ser Thr Gly Leu Pro Phe Ala Leu Ser Ser Lys
E--> 1152 1425          1430          1435          1440
      1154 Gly Ala Val Leu Met Leu Glu Pro Thr Arg Pro Leu Ala Glu Asn Val
E--> 1155          1445          1450          1455
      1157 Ser Arg Gln Leu Arg Gln His Pro Phe Tyr Ala Asn Pro Thr Leu Arg
E--> 1158          1460          1465          1470
      1160 Met Arg Gly Met Ser Ser Phe Gly Ser Ser Asn Ile Cys Ile Met Thr
E--> 1161          1475          1480          1485
      1163 Ser Gly Phe Ala Phe Asn Tyr Phe Ala Asn Asn Pro Leu Lys Leu Ser
E--> 1164          1490          1495          1500
      1166 Asp Phe Glu Phe Val Ile Ile Asp Glu Cys His Val Leu Asp Ser Asn
E--> 1167 1505          1510          1515          1520
      1169 Ala Met Ala Phe Val Cys Leu Leu Lys Glu His Asn Tyr Asp Gly Lys
E--> 1170          1525          1530          1535
      1172 Leu Leu Lys Val Ser Ala Thr Pro Gln Gly Arg Glu Cys Glu Phe His
E--> 1173          1540          1545          1550
      1175 Thr Gln His Pro Val Ser Ile His Ile Glu Glu Gln Leu Ser Phe Gln
E--> 1176          1555          1560          1565
      1179 Ala Phe Cys Glu Ala Gln Gly Thr Gly Ser Ala Arg Asp Val Ile Asn
E--> 1180          1570          1575          1580
      1182 Lys Gly Asp Asn Ile Leu Val Tyr Val Ala Ser Tyr Asn Glu Val Asp
E--> 1183 1585          1590          1595          1600
      1185 Gln Leu Ser Lys Met Leu Gly Asp Lys Gly Tyr Leu Val Thr Lys Val
E--> 1186          1605          1610          1615
      1188 Asp Gly Arg Thr Met Lys Ile Gly Ser Thr Asp Ile Val Thr Lys Gly
E--> 1189          1620          1625          1630
      1191 Ser Ser Gln Lys Lys His Phe Ile Val Ala Thr Asn Ile Ile Glu Asn
E--> 1192          1635          1640          1645
      1194 Gly Val Thr Leu Asp Val Asp Val Val Val Asp Phe Gly Leu Lys Val
E--> 1195          1650          1655          1660
      1197 Thr Ala Glu Ile Asp Tyr Asp Asn Arg Cys Val Asn Tyr Thr Lys Thr
E--> 1198 1665          1670          1675          1680
      1200 Ser Ile Ser Tyr Gly Glu Arg Ile Gln Arg Leu Gly Arg Val Gly Arg
E--> 1201          1685          1690          1695
      1203 His Lys Lys Gly His Ala Met Arg Ile Gly Thr Thr Ile Lys Gly Leu
E--> 1204          1700          1705          1710
      1206 Ile Glu Ile Pro Ser Leu Val Ala Thr Gln Ala Ala Phe Gln Cys Phe
E--> 1207          1715          1720          1725
      1209 Thr Tyr Gly Leu Pro Val Met Thr Gln Gly Val Ser Val Asn Ser Leu
E--> 1210          1730          1735          1740
      1213 Ser Asn Cys Thr Val Arg Gln Ala Arg Val Met Ser Arg Phe Glu Leu
E--> 1214 1745          1750          1755          1760

```

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:53

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

```

1216 Pro Pro Tyr Phe Met Ala Ser Leu Val Tyr His Asp Gly Ser Met His
E--> 1217          1765          1770          1775
1219 Pro Glu Ile His Lys His Leu Ile Pro Tyr Lys Leu Asp Glu Ser Glu
E--> 1220          1780          1785          1790
1222 Ile Gln Leu Ser Ala Met Ala Phe Asn Phe Thr Val Thr Ser Ile Trp
E--> 1223          1795          1800          1805
1225 Leu Asp Cys Lys Phe Tyr Asp Ser Ile Gly Ile His Leu Asp Leu Pro
E--> 1226          1810          1815          1820
1228 Arg Glu Ala Lys Ile Pro Phe His Cys Arg Glu Phe Pro Asp Met Lys
E--> 1229 1825          1830          1835          1840
1231 Tyr Arg His Leu Trp Glu Asp Ile Leu Lys Ile Lys Ser Ile Asn Cys
E--> 1232          1845          1850          1855
1234 Phe Gly Arg Met Ser Val Val Ser Ala Thr Lys Val Ala Tyr Thr Leu
E--> 1235          1860          1865          1870
1237 Lys Thr Asp Ile His Ser Ile Gly Lys Thr Leu Gly Tyr Ile Asp Ala
E--> 1238          1875          1880          1885
1240 Leu Leu Gln Glu Glu Tyr Arg Lys Gln His His Phe Lys Ala Met Thr
E--> 1241          1890          1895          1900
1244 Ser Asn Ala Cys Ser Gly Asn Thr Phe Ser Met Leu Ser Ile Ala Asn
E--> 1245 1905          1910          1915          1920
1247 Ala Ile Arg Asn His Tyr Ala Lys Asp Tyr Thr Ala Gly Asn Ile Gln
E--> 1248          1925          1930          1935
1250 Lys Leu Gln Ala Ala Lys Asn Gln Ile Leu Glu Phe Val Asn Leu Asn
E--> 1251          1940          1945          1950
1253 Leu Asp Pro Ser Ala Lys Cys Gly Phe Gln Glu Phe Gly Ala Leu Glu
E--> 1254          1955          1960          1965
1256 Leu Val Thr His Gln Ser Arg Gln Glu Ile Ser Lys Phe Leu Asn Leu
E--> 1257          1970          1975          1980
1259 Arg Gly Lys Trp Asn Lys Ser Leu Ile Thr Arg Asp Ile Leu Val Leu
E--> 1260 1985          1990          1995          2000
1262 Leu Gly Val Thr Ile Gly Gly Phe Trp Met Ile Trp Asp Lys Phe Lys
E--> 1263          2005          2010          2015
1265 Ser Asn Ile Glu Glu Val His His Glu Gly Lys Arg Lys Thr Gln Lys
E--> 1266          2020          2025          2030
1268 Leu Lys Phe Arg Asp Ala Arg Asp Lys Lys Met Gly Arg Glu Val Tyr
E--> 1269          2035          2040          2045
1271 Gly Asp Asp Gly Thr Ile Glu His Tyr Phe Gly Ser Ala Tyr Val Lys
E--> 1272          2050          2055          2060
1274 Arg Gly Ala Val Lys Gly Gln Lys Arg Gly Met Gly Glu Lys Ser Arg
E--> 1275 1065 2065          2070          2075          2080
1277 Arg Phe Val Ser Met Tyr Gly Val Asn Leu Glu Asp Phe Ala Phe Ile
E--> 1278          2085          2090          2095
1280 Arg Tyr Ile Asp Pro Ile Thr Gly Ala Thr Arg Asp Glu Ser Pro Leu
E--> 1281          2100          2105          2110
1283 Thr Asp Val Glu Leu Val Gln Ala His Phe Gly Glu Ile Arg Asp Lys
E--> 1284          2115          2120          2125
1286 Met Leu Asp Glu Gly Leu Ile Asp Arg Gln His Ile Leu Asn Lys Pro
E--> 1287          2130          2135          2140
1289 Gly Leu Thr Ala Tyr Leu Val Lys Asp Gly Val Lys Ser Ile Met Lys

```

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:54

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

```

E--> 1290 2145          2150          2155          2160
      1293 Val Asp Leu Gln Pro His Asn Pro Leu Leu Ile Cys Lys Asn Lys Ala
E--> 1294          2165          2170          2175
      1296 Thr Ile Ala Gly Phe Pro Glu Lys Glu Phe Val Leu Arg Gln Thr Asp
E--> 1297          2180          2185          2190
      1299 Lys Ala Tyr Glu Val Ser Arg Glu Glu Leu Pro Glu Arg Asn Glu Asp
E--> 1300          2195          2200          2205
      1302 Val Ser Phe Glu Gly Ala Ser Ser Val Lys Gly Leu Arg Asp Tyr Asn
E--> 1303          2210          2215          2220
      1305 Gly Val Ala Ser Ala Ile Cys Gln Leu Thr Asn Asn Ser Asn Gly Arg
E--> 1306 2225          2230          2235          2240
      1308 Ser Thr Thr Thr Tyr Gly Val Gly Phe Gly Ser Tyr Ile Ile Val Asn
E--> 1309          2245          2250          2255
      1311 Arg His Leu Phe Lys Glu Asn Asn Gly Asn Leu Leu Ile Lys Ser Thr
E--> 1312          2260          2265          2270
      1314 His Gly Asn Phe Asn Ile Arg Asn Ser Lys Gln Ile Lys Val Val Gly
E--> 1315          2275          2280          2285
      1317 Val Glu Asp Arg Asp Ile Ala Ile Leu Gln Met Pro Lys Asp Phe Pro
E--> 1318          2290          2295          2300
      1321 Pro Phe Ala Gln Arg Leu Arg Phe Arg Asn Pro Ile Val Gly Glu Ser
E--> 1322 2305          2310          2315          2320
      1324 Ile Cys Leu Val Gly Asn Thr Phe Gln Glu Lys Tyr Asn Ala Ser Ile
E--> 1325          2325          2330          2335
      1327 Val Ser Glu Thr Ser Lys Thr Phe Pro Arg Val Glu Gly Ser Phe Trp
E--> 1328          2340          2345          2350
      1330 Lys His Trp Ile Asn Thr Thr Glu Gly His Cys Gly Leu Pro Leu Val
E--> 1331          2355          2360          2365
      1333 Ser Val Thr Asp Gly Phe Ile Val Gly Ile His Ser Leu Met Ser His
E--> 1334          2370          2375          2380
      1336 Lys Tyr Asp His Asn Tyr Phe Ser Asn Phe Asp Asp Ala Phe Glu Gly
E--> 1337 2385          2390          2395          2400
      1339 Asp Tyr Ile Asn Lys Leu Lys Glu Leu Lys Trp Glu Gln Asn Trp Thr
E--> 1340          2405          2410          2415
      1342 Tyr Asn Val Asn Thr Val Ser Trp Gly Asn Met Lys Leu Gln Asp Ser
E--> 1343          2420          2425          2430
      1345 Ala Pro Cys Lys Glu Phe Lys Thr Thr Lys Leu Ile Ser Asp Leu Cys
E--> 1346          2435          2440          2445
      1349 Thr Glu Pro Val Cys Ala Gln Ser Ser Asn Gln Val Arg Trp Leu Tyr
E--> 1350          2450          2455          2460
      1352 Asn Gln Leu Glu Gly Asn Leu Lys Ala Val Ala Thr Ile Pro Asn Asn
E--> 1353 2465          2470          2475          2480
      1355 Phe Val Thr Lys His Ile Val Lys Gly Arg Cys Lys Leu Phe Glu Leu
E--> 1356          2485          2490          2495
      1358 Tyr Leu Gln Thr Arg Ser Glu Ala Asn Glu Phe Phe Lys Pro Leu Met
E--> 1359          2500          2505          2510
      1361 Gly Phe Tyr Gly Lys Ser Gly Leu Asn Lys Glu Ala Tyr Ile Lys Asp
E--> 1362          2515          2520          2525
      1364 Leu Phe Lys Tyr Ser Ser Glu Ile Pro Ile Gly Glu Val Asp Thr Glu
E--> 1365          2530          2535          2540

```

RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:54

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

```

1367 Arg Phe Glu Asp Ala Val Gly Gln Val Ile Glu Ile Met Met Gln Trp
E--> 1368 2545                2550                2555                2560
1370 Asn Phe Arg Glu Cys Lys Tyr Ile Thr Asp Cys Asp Gln Ile Phe Glu
E--> 1371                2565                2570                2575
1373 Ser Leu Asn Met Lys Ala Ala Val Gly Ala Leu Tyr Ser Gly Lys Lys
E--> 1374                2580                2585                2590
1377 Lys Ala Tyr Phe Glu Asn Ser Thr Phe Asp Asp Arg Asn His Leu Leu
E--> 1378                2595                2600                2605
1380 Gln Leu Ser Cys Leu Arg Leu Phe Lys Gly Asp Leu Gly Ile Trp Asn
E--> 1381                2610                2615                2620
1383 Gly Ser Leu Lys Ala Glu Leu Arg Pro Ile Glu Lys Val Glu Ala Asn
E--> 1384 2625                2630                2635                2640
1386 Lys Thr Arg Thr Phe Thr Ala Ala Pro Ile Glu Thr Leu Leu Gly Gly
E--> 1387                2645                2650                2655
1389 Lys Val Cys Val Asp Asp Phe Asn Asn Gln Phe Tyr Asp Leu Asn Met
E--> 1390                2660                2665                2670
1392 Lys Cys Pro Trp Thr Val Gly Met Thr Lys Phe Tyr Cys Gly Trp Asn
E--> 1393                2675                2680                2685
1395 Asp Leu Leu Gly Lys Leu Pro Asp Gly Trp Ile Tyr Arg Asp Ala Asp
E--> 1396                2690                2695                2700
1398 Gly Ser Arg Phe Asp Ser Ser Leu Thr Pro Tyr Leu Leu Asn Ala Val
E--> 1399 2705                2710                2715                2720
1401 Leu Gly Ile Arg Glu Phe Phe Met Glu Asp Trp Asp Ile Gly Val Gln
E--> 1402                2725                2730                2735
1405 Met Leu Arg Asn Leu His Thr Glu Ile Ile Tyr Thr Pro Ile Ala Thr
E--> 1406                2740                2745                2750
1408 Pro Asp Gly Thr Val Val Lys Lys Phe Arg Gly Asn Asn Ser Gly Gln
E--> 1409                2755                2760                2765
1411 Pro Ser Thr Val Val Asp Asn Thr Leu Met Val Cys Ile Cys Val Gln
E--> 1412                2770                2775                2780
1414 Tyr Ser Leu Ile Met Asn Ser Val Lys Phe Glu Asn Gln Asp Asp Val
E--> 1415 2785                2790                2795                2800
1417 Cys Arg Tyr Phe Val Asn Gly Asp Asp Leu Leu Leu Ala Ile Asn Pro
E--> 1418                2805                2810                2815
1420 Lys Phe Ile His Ile Leu Asp Ser Phe Lys Val His Phe Ala Asn Leu
E--> 1421                2820                2825                2830
1423 Gly Leu Asp Tyr Asp Phe Ser His Arg Thr Lys Asp Lys Gly Glu Leu
E--> 1424                2835                2840                2845
1426 Trp Phe Met Ser His Lys Gly Val Lys Leu Asn Asp Met Tyr Ile Pro
E--> 1427                2850                2855                2860
1429 Lys Leu Glu Pro Glu Arg Val Val Ser Ile Leu Glu Trp Asp Arg Ser
E--> 1430 2865                2870                2875                2880
1432 Val Lys Pro Glu His Arg Leu Glu Ala Ile Cys Ala Ser Met Ile Glu
E--> 1433                2885                2890                2895
1435 Ala Trp Gly Tyr Pro Arg Leu Ile His Glu Ile Arg Lys Phe Tyr Ala
E--> 1436                2900                2905                2910
1438 Trp Val Leu Glu Gln Ala Pro Tyr Asn His Leu Ala Ser Glu Gly Lys
E--> 1439                2915                2920                2925
1441 Ala Pro Tyr Ile Ser Glu Thr Ala Leu Lys Arg Leu Tyr Thr Cys Glu

```


RAW SEQUENCE LISTING

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:54

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

```

E--> 1442      2930      2935      2940
      1444 Glu Gly Ser Ala Asp Glu Ile Met Ser Tyr Leu Glu Met Cys Ala Ser
E--> 1445 2945      2950      2955      2960
      1447 Asp Leu Asn Glu Asp Glu Tyr Phe Asp Asp Glu Asp Val Ser His Gln
E--> 1448      2965      2970      2975
      1450 Ser Ala Leu Asp Ala Gly Lys Pro Thr Ala Glu Asn Lys Lys Asp Asp
E--> 1451      2980      2985      2990
      1453 Glu Glu Arg Lys Asn Lys Glu Glu Lys Gln Glu Asn Lys Asn Lys Asn
E--> 1454      2995      3000      3005
      1456 Lys Glu Val Glu Lys Lys His Glu Lys Thr Ser Asn Ser Ala Ser Gly
E--> 1457      3010      3015      3020
      1459 Ala Ile Val Ser Asn Asn Glu Lys Asp Lys Asp Val Asp Val Gly Ser
E--> 1460 3025      3030      3035      3040
      1462 Ser Gly Ser Phe Ile Ile Pro Arg Ile Lys Ser Ile Ser Asn Lys Leu
E--> 1463      3045      3050      3055
      1465 Thr Met Pro Lys Val Lys Gly Lys Gly Ile Leu Asn Leu Glu Phe Leu
E--> 1466      3060      3065      3070
      1468 Leu Gln Tyr Thr Pro Asp Gln Val Asp Ile Ser Asn Thr Arg Ala Ser
E--> 1469      3075      3080      3085
      1471 Ile Ser Gln Phe Asn Thr Trp Tyr Asn Ala Val Lys Glu Ser Tyr Gly
E--> 1472      3090      3095      3100
      1474 Val Ser Asp Glu Glu Met Gly Ile Ile Leu Asn Gly Leu Met Val Trp
E--> 1475 3105      3110      3115      3120
      1477 Cys Ile Glu Asn Gly Thr Ser Pro Asn Ile Asn Gly Met Trp Phe Met
E--> 1478      3125      3130      3135
      1480 Met Gln Gly Glu Glu Gln Ile Glu Tyr Pro Leu Gln Pro Ile Val Glu
E--> 1481      3140      3145      3150
      1483 Asn Ala Lys Pro Thr Leu Arg Gln Ile Met Ala His Phe Ser Asn Val
E--> 1484      3155      3160      3165
      1486 Ala Glu Ala Tyr Ile Glu Lys Arg Asn Tyr Glu Lys Pro Tyr Met Pro
E--> 1487      3170      3175      3180
      1490 Arg Tyr Gly Ile Gln Arg Asn Leu Thr Asp Met Ser Leu Ala Arg Tyr
E--> 1491 3185      3190      3195      3200
      1493 Ala Phe Asp Phe Tyr Glu Met Thr Ser Arg Thr Pro Ala Arg Ala Arg
E--> 1494      3205      3210      3215
      1496 Glu Ala His Ile Gln Met Lys Ala Ala Ala Leu Arg Asp Ala Asn Asn
E--> 1497      3220      3225      3230
      1499 Lys Met Phe Gly Leu Asp Gly Lys Val Gly Asn Ala Thr Glu Asn Thr
E--> 1500      3235      3240      3245
      1502 Glu Arg His Thr Ala Asp Asp Val Asn His Asn Thr His Ala Phe Thr
E--> 1503      3250      3255      3260
      1505 Gly Val Arg Tyr Tyr
E--> 1506 3265

```

VERIFICATION SUMMARY

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:55

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set : N:\CRF4\07202004\J076839A.raw

L:40 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:0
L:870 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1 after pos.:10142
L:1086 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1089 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1092 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1096 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1099 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1102 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1105 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1108 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1111 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1114 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1117 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1120 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1124 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1127 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1130 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1133 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1136 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1139 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1142 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1145 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1148 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1152 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1155 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1158 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1161 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1164 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1167 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1170 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1173 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1176 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1180 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1183 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1186 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1189 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1192 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1195 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1198 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1201 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1204 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1207 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1210 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1214 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1217 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1220 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1223 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1226 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2

VERIFICATION SUMMARY

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:55

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

L:1229 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1232 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1235 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1238 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1241 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1245 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1248 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1251 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1254 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1257 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1260 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1263 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1266 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1269 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1272 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1275 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1278 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1281 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1284 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1287 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1290 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1294 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1297 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1300 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1303 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1306 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1309 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1312 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1315 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1318 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1322 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1325 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1328 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1331 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1334 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1337 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1340 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1343 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1346 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1350 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1353 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1356 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1359 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1362 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1365 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1368 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1371 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1374 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1378 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2

VERIFICATION SUMMARY

DATE: 07/20/2004

PATENT APPLICATION: US/10/076,839A

TIME: 11:21:55

Input Set : A:\Sequence Listing - text 13july04.txt

Output Set: N:\CRF4\07202004\J076839A.raw

L:1381 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1384 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1387 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1390 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1393 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1396 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1399 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1402 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1406 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1409 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1412 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1415 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1418 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1421 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1424 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1427 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1430 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1433 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1436 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1439 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1442 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1445 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1448 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1451 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1454 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1457 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1460 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1463 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1466 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1469 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1472 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1475 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1478 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1481 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1484 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1487 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1491 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1494 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1497 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1500 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1503 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1506 M:332 E: (32) Invalid/Missing Amino Acid Numbering, SEQ ID:2
L:1512 M:283 W: Missing Blank Line separator, <220> field identifier